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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/990,847	11/21/2001	Gregory C. Burnett	37212.8014	2714

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EXAMINER

PIERRE, MYRIAM

ART UNIT PAPER NUMBER

2654

DATE MAILED: 08/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/990,847

Applicant(s)

BURNETT, GREGORY C.

Examiner

Myriam Pierre

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --  
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Holzrichter (5,729,694).

Regarding Claim 1, Holzrichter teaches of generating a pulsed excitation function representative of a human vocal tract, comprising:

receiving movement information of at least one tissue type associated with human voicing activity, (**"Glottal tissue includes vocal fold tissue and surrounding tissue"**, column 6, lines 4-5 and **"works for all human speech sounds and languages"**, column 6, lines 11-12) wherein the movement information comprises position versus time information (**see Fig 9B**), wherein the at least one tissue type includes human tissue that vibrates with opening and closing of vocal folds (**"including repetitive motions of the vocal folds"**, column 5 lines 61-63; **"glottal open/close cycles are same as vocal fold open/close cycles"**, column 6, lines 5-7);

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generating pressure information using at least one derivative of the movement information (**"air sensors in various locations to calibrate...pressure versus time signals, measuring both...under...speech vocabulary...These methods are valuable for obtaining glottal open and closure times and the shape (derivatives) of the air flow versus time signal"**, column 21, lines 45-55),

identifying opening times and closing times of the vocal folds using the pressure information (**"pressure versus time signal"**, column 21, lines 49-52),

constructing the pulsed excitation function by generating a curve including negative amplitude pulses at times corresponding to the closing times and positive amplitude pulses at times corresponding to the opening times; (**"...excitation function feature vector formation, either a pattern (or curve fit) of the spectrum can be stored...column 30 , lines 36-37; "...It measures...wave reflection from the vocal folds and surrounding glottal tissue as they open and close...determine...glottal opening during the voicing of each voiced acoustic speech unit...measure and generate...an accurate voiced speech excitation function"** ... Figure 15B; column 21, lines 8-15) and inherently adjusting amplitudes and widths of the negative amplitude and positive amplitude pulses to match speech output of the human vocal tract.

Regarding claim 2, Holzrichter teaches of determining parameters of the human vocal tract by inherently applying a simple harmonic oscillator model to the constructed pulsed excitation function, wherein the parameters include mass, elasticity, and damping; and constructing a model of the human vocal tract using the parameters. (**"opening amplitudes, mass constants from pitch, damping, and compliance from sympathetic tissue vibration", column 39, lines 54-61**)

Regarding claim 3, Holzrichter uses the constructed pulsed excitation function, wherein the human speech parameters include voiced excitation functions (**"human voiced excitation function used during each glottal open/close period of voiced speech", column 26, lines 2-5**), voicing states (**inherent in voiced or unvoiced excitation functions, column 21, line 12 and column 30, line 20**), pitch periods (**"...described by the pitch period..."column 26, lines 31-35**), vocal tract transfer functions (**"...vocal tract transfer function obtained by de-convolving the excitation function..."**, column 7, lines 58-64), and tracheal wall parameters (**characteristic dimensions of vocal folds, glottal impedance, Fig 13A-F and Fig 16, column 23, lines 34-36, glottal size and compliance, lung air pressure, and related parameters, column 2, lines 22-29**).

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**Conclusion**

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Myriam Pierre whose telephone number is 703-605-1196. The examiner can normally be reached on Monday – Friday from 8:30 a.m. -5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on 703-306-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MP

07/20/2004

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER

**Best Available Copy**